



JOHN ENGLER, Governor

**DEPARTMENT OF ENVIRONMENTAL QUALITY**

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US EPA RECORDS CENTER REGION 5



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A. 2  
2/28/97

February 28, 1997

Mr. Jon Peterson  
U.S. Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604

Dear Mr. Peterson:

**SUBJECT:** Comments on the Preliminary (30%) Design for the  
Albion-Sheridan Township Landfill  
Calhoun County, Michigan

The Michigan Department of Environmental Quality (MDEQ) has completed their review of the Preliminary Design for the Albion-Sheridan Township Landfill. Our comments are list below.

1. Page 1-4, paragraph eight: Please clarify that Woodward Clyde is working on behalf of the liable party group.
2. Page 1-7, Section 1.3.3 Site Surveying: Please use the Global Positioning System (GPS) for well locations.
3. Page 1-8, Section 1.3.6 Air Emissions Study: Please include field verification of the landfill air emissions estimation model to confirm that all ARARs are met during landfill remediation and waste consolidation activities.
4. Page 2-1, Restrictive Covenants/Deed Restrictions: As discussed in our February 4, 1997 meeting, it will be necessary to execute restrictive covenants that are administratively similar to the MDEQ's model documents. The 30% design document states that deed restrictions or a local ordinance will be implemented 30 days after the approval of the pre-design studies report, this was not done.
5. Page 2-2, Drummed Waste: The contractor hired to complete the drum removal activities should determine if excavated drums are "structurally sound".
6. Section 3.3.4 Conclusions: It does not appear that the proposed on-site soil materials in conjunction with strip drains meets the technical equivalent of the drain layer component established in the ROD. If an alternative soil material were to be used, the proposal could be accepted in the ROD were to be amended.

The MDEQ is willing to accept the use of consolidated waste and on-site borrow materials for grading the site to minimum slopes.

7. Page 3-5, Section 3.4 Drum Removal: Please expand on the drum staging area. The staging area should be a storage pad lined with PVC or PE and bermmed to contain potential spills/leaks.
8. Table 3-1: Please include Michigan Act 641 as an ARAR under the Groundwater Monitoring and Analyses section. This ARAR requires additional monitoring than what is proposed in the 30% design.
9. Page 4-1, Section 4.2 Waste Movement and Site Grading: Please include language to address metal debris to be scrapped off prior to initiating grading activities.
10. Page 6-1, Section 6.1 Introduction: The deed restrictions should prohibit the installation of groundwater wells and use of groundwater from the area noted in Figure 4 of the ROD.
11. Page 6-2, Section 6.4 Permit Requirements: The liable parties will need to petition the MDEQ's Surface Water Quality Division for a mixing zone determination to determine if contaminated groundwater is venting to the Kalamazoo River.
12. Page 11-1, Section 11.2 Groundwater Monitoring System Operation and Maintenance: Additional investigative work is needed to complete the basic hydrogeologic study for a landfill site as required in the Solid Waste Management rules of Act 451. Additional information needed to support the groundwater monitoring proposed in the 30% design report needs to include: 1) background water quality on the east and possibly west sides of the landfill; 2) the defined aquifer thickness; 3) the defined deep bedrock groundwater quality and bedrock elevations across the site and; 4) a map that shows the distance to all existing wells and the properties in the surrounding area that have potential for groundwater supplies. The map needs to identify all soil borings and wells with 1/2 mile of the site, including all domestic, municipal, industrial, oil and gas wells for which copies of logs are available. This area includes wells south of the Kalamazoo River; 5) include or reference the location of observation well records or soil borings; 6) provide a groundwater elevation map using elevations referenced to United States geological survey datum. This data should include possible variations in groundwater flow direction; 7) provide or reference geologic cross-section or fence diagrams; 8) provide a list of all stabilized static water level readings; 9) a monitoring plan for the surface water to that may receive leachate by groundwater venting; 10) all wells must be clearly labeled and shall be properly vented, capped, and locked when not in use. In addition, all wells shall be visible throughout the year. Protective posts painted in bright colors will help comply with this request; and 11) the construction of monitoring wells will be completed by a well driller registered under or regulated by Act 451.
13. Page 11-2, Section 11.3 Passive Gas Venting System Operation and Maintenance: Considering the close proximity of residential structures to landfill, it will be necessary to field verify if passive gas venting, as designed, is adequate to protect public health.

## **Appendix B**

14. Page 1-1, Section 1.1 Site Location and Description: The Amberton Village housing development is located on the east side of the site with residences about 500 feet away from the landfill. Drawing 2 identifies a number of lotted properties located immediately adjacent to the landfill. It does not appear that these lots have existing residences. Although there will be restrictive

covenants preventing water supply wells downgradient from the landfill, will there be any isolation distances required? Lateral isolation distances for landfill are required under the Michigan Solid Waste Rules.

15. Page 2-1, Section 2.1 Site Geology: Please reference and/or include the location of the geologic cross-section or fence diagrams.
16. Page 2-1, Section 2.2 Hydrogeology: There needs to be adequate definition of groundwater flow direction before determining a groundwater monitoring plan. The monitoring system will be based on locations designed to assess the impact of the discharge on groundwater. The state solid waste programs generally require groundwater monitoring wells at least every 150 to 300 feet for monitoring purposes at landfill that have a base liner, sidewalls, and perimeter collection systems. The Albion-Sheridan Township Landfill, without a liner or sidewalls, and only a cap proposed for its remediation, has spaces of over 1000 feet between wells for groundwater flow direction determination and monitoring. Listed below are our suggestions on how to correct this issue.

On the *northwest side*, there is approximately 1,050 feet between MW01 and MW03. The groundwater flow direction maps show different curvatures on the contour lines from 1992, 1993, and 1996. These discrepancies confuse whether the contour lines flatten out, extend more to the north or curve back to the south. By installing wells in this vicinity, it will help determine if any contamination may be migrating from any areas upgradient of the site. If the adjacent landowner will not permit well installation, one important location that should be addressed would be just within lot 27 parcel 4 about 400 feet north of MW03. The nested wells should be screened in the unconsolidated glacial, weathered bedrock and shallow bedrock aquifers. This location will be good for obtaining additional groundwater quality information to support the contaminant plume profiles provided in June 1993. It would also be helpful to know for monitoring purposes if all contaminant plumes end just north of MW03 as shown on the diagrams or just short of MW01, 1000 feet north of MW03. If the groundwater flow direction is more westerly in this area then it needs to be adequately monitored.

On the *west side*, it would be helpful to include a well cluster between MW03 and MW04 for downgradient monitoring. There is more than 450 feet between MW03 and MW04.

On the *south side*, arsenic has been detected in MW16SB at 7.9 ug/l. There are no wells at the appropriate depth downgradient from MW16SB to monitor the arsenic plume. Adding wells screened in the weathered bedrock and shallow bedrock would be useful to monitor the downgradient plume at MW12SG and MW13SG. The MDEQ would also like to see additional wells screened in the weathered and shallow bedrock at MW10SG.

On the *southeast side*, please include two additional well clusters between MW05 and MW07. These wells could be an important downgradient location for all aquifers that have been overlooked.

On the *east side*, given the lack of data along nearly the entire side, groundwater quality for homes immediately adjacent to the landfill can not be assured. There is no protection for residences such as a 300 feet isolation distance. Currently MW02 and MW05 are spaced approximately 300 feet apart. Any wells placed on the perimeter between MW02 and MW05 would be an improvement.

The *river*. The liable parties charge that groundwater is discharging to the Kalamazoo River based on an upward gradient at a well nearly 700 feet north of the river. Groundwater contaminant data does not appear to support this theory. Additional information such as groundwater flow direction on the other side of the river, vertical gradient determination on the opposite side of the river, and tracer test information to support the liable parties claims is needed. The contaminant concentration profiles dated June 1993 do not support plume discharge to the river. Groundwater samples results from MW16SB show 7.9 ug/l arsenic at a depth similar to the previously mapped plume depth. The plume is not getting shallower to allow venting to the river. There is no monitoring planned south of the river and there are no wells south of MW16 that are screened a plume depth (weathered or shallow bedrock aquifers). If groundwater is venting to the river, it will be necessary to include a discharge permit within the permit requirements section. At a minimum, it will be necessary to collect upgradient and downgradient surface water samples.

17. Page 5-1, Section 5 Landfill Cap Construction Monitoring Plan: The performance monitoring plan includes monitoring the construction of the landfill cap but not long-term performance monitoring of the landfill cap. Please expand this section to include long-term performance monitoring of the landfill cap.
18. Page 6-1: It will be necessary to field verify the landfill air emissions estimation model calculations and prepare a long-term operations and maintenance plan if necessary.
19. Page 7-1, Section 7.1 O&M Monitoring Well Locations: The locations of monitoring wells should be revised or expanded once further hydrogeologic definition is provided, see comment no. 15. Existing monitoring wells for shallow glacial groundwater should include MW06SG (to monitor the existing arsenic plume), MW12SG and MW13SG (to monitor for arsenic in downgradient wells). Weathered bedrock wells need to be included in the monitoring plan. This highest concentration of arsenic is in MW06WB. This well is exactly downgradient and screened in the best location to show downgradient groundwater quality. The monitoring wells selected for weathered bedrock should be identical to the shallow bedrock wells.
20. Page 7-1, Section 7.2 Monitoring Well Installation: Please clarify if schedule 40 or 80 PVC riser and well screen will be used.
21. Page 7-2, Section 7.4 O&M Groundwater Analysis Program: Based on existing information, the monitoring plan should be modified to include additional parameters appropriate for a landfill that has accepted industrial and municipal waste.

Quarterly groundwater monitoring needs to include chlorides, iron, sulfates, total inorganic nitrogen, total dissolved solids, magnesium, manganese, potassium, sodium, as well as, field parameters, arsenic and ammonia. In addition, the groundwater depth and elevation before purging will need to be collected for all site wells.

The quarterly monitoring of the seven drinking water wells will need to consist of: 1) all parameters listed above; 2) parameters listed in Part 115, P.A. 451 as follows: heavy metals as listed in R229.4452 including aluminum; primary volatile organic constituents (VOCs) listed in R299.4452 (halogenated and aromatic VOC's); secondary organic parameters as listed in R299.4454 (carbon disulfide and 1,2-Dibromo-3-chloropropane); cyanide, mercury, antimony, and the parameters included in the groundwater monitoring plan.

Annual monitoring will need to consist of the parameters listed for the quarterly monitoring of the seven drinking water wells.

22. Page 7-2, Section 7.4.2 Annual Groundwater Monitoring: Please include iron and bis(2-Ethylhexyl)phthalate as chemicals of concern to be monitored for.
23. Page 7-2, Section 7.4.3 Five-Year Review Groundwater Monitoring: Post-closure care included in monitoring of a Type II (lined) landfill in Michigan under the part 115 rules of Act 451 (previously Act 641) continues for not less than 30 years. Groundwater monitoring proposed for the Albion-Sheridan Township Landfill will cease after five years if arsenic is at an acceptable level. Consideration should be given to extending this requirement.
24. Page 8-1, Section 8.2 Analytical Methods: Please include the use of Operational Memorandum # 6, Revision #4 dated September 13, 1995.

**Preliminary Design Issue Letter**

25. Technical issues No. 5: In reviewing the UAO, the liable parties are ordered to, "... cap the entire landfill waste mass... and to re-route surface water drainage away from the capped area." The response to technical issue 5 seems contradictory to the UAO.

If you have any questions or would like to discuss anything included in this letter, please feel free to contact me.

Sincerely,



Kim Sakowski  
Superfund Section  
Environmental Response Division  
517-335-3391

cc: Ms. Margie Frisch, MDEQ  
Albion-Sheridan file (L1)  
SMU2 File